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# PURPOSE

To establish minimum operating and testing requirements for exhausted equipment and enclosures used to manage chemicals and particulates.

# SCOPE

This specification applies to production equipment with open baths or tanks that require an exhaust system to manage personnel exposure to chemicals and particulates. In addition, this specification applies to laboratory exhaust hoods and any other hoods or sinks that require exhaust for personnel protection.

The provisions of this specification apply to all TI employees, suppliers, vendors, and visitors at TI sites worldwide.

# reference documents

## TI Standard Policy & Procedure [04-04-01, "Environment, Safety, Health"](https://giant.sc.ti.com/obis/wwpr.nsf/b3e7f6d26afb1519862567610007b6ed/175c9d3fa21585da062568c0006b2230?opendocument)

## TI ESH Specification [03.01C, “Hazard Communication and Chemical Labeling”](https://sps01.itg.ti.com/sites/wwf/esh/standards/Knowledge_Bank/03-01C%20%28Expires%2003-22-2007%29.doc)

## TI ESH Standard [ENV05.01, “Air Programs Management”](https://sps01.itg.ti.com/sites/wwf/esh/standards/Knowledge_Bank/ENV05-01%20%28Expires%2003-22-2007%29.doc)

# Definitions

[TI ESH Standards Glossary of Definitions](https://sps01.itg.ti.com/sites/wwf/esh/standards/Knowledge_Bank/00.01.xlsx)

# Requirements

## Written Program. Sites have a process that ensures the proper operation and testing of hoods and exhaust systems used to manage personnel exposure to chemicals and particulates. The process shall include:

### Provisions to ensure exhaust systems are properly segregated and allow for proper treatment of each type of exhaust emission in accordance with TI ESH Standard ENV05.01: “Air Programs Management.”

### Provisions to ensure the equipment and exhaust systems are labeled in accordance with TI ESH Specification [03.01C, “Hazard Communication and Chemical Labeling.”](https://sps01.itg.ti.com/sites/wwf/esh/standards/Knowledge_Bank/03-01C%20%28Expires%2003-22-2007%29.doc)

### Provisions to ensure design reviews occur when exhaust systems used for managing personnel exposure are installed or modified.

#### Sites shall verify the controls provided with the equipment are appropriate for its intended use; and

#### Sites shall ensure the exhaust system provides adequate protection from exposure to chemicals or gases (i.e. below the established TI Action Level). If air sampling indicates that adequate protection is not achieved, sites shall determine and implement additional controls which may be required to achieve the desired protection level.

## General Requirements

### Exhaust systems shall be balanced to ensure adequate exhaust at each workstation without back pressurization of the equipment.

### Sites shall perform air flow measurements to evaluate the performance of exhaust systems used for personnel exposure control

#### Sites shall manually measure the air flow velocity of open, exhausted workstations to determine if the equipment exhaust provides the minimum air flow velocity.

#### Sites shall define the exposure risk evaluation process used to evaluate risk of chemical exposure and determine whether a chemical agent requires quantitative assessment (e.g., sampling). The exposure risk evaluation shall, at a minimum, consider the following:

##### The average air flow velocity must be a minimum of 80 feet per minute (0.4m/sec)

#### Air flow velocity measurements shall be taken in each square foot (0.093 square meters) of the open workstation

### Evaluations shall be performed and documented at least annually to ensure adequate performance of the ventilation system

#### Process equipment, laboratory hoods, and similar equipment that require exhaust to protect employees shall be provided with a visual monitoring device (e.g., magnehelic, streamer, etc) to allow those who use the system to ascertain if it is operating.

#### Exhaust hoods shall not be used for chemical storage

#### When not in use, the sash on the hood shall be closed for safety and energy efficiency.

### Exhaust System Performance: Workstation exhaust shall control exposure below the action level.

# Record Keeping

Sites shall retain exhaust system evaluation documentation in accordance with TI “Record Retention” Policy SP&P 04-07-01.

# STANDARD Approval

This standard has been approved by David Thomas, TI Vice President.

# Revision history

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Rev# | Date | Nature of Revision | Author/Editor | Approver |
| A | 12/29/2006 | Periodic review; Standard title changed; added written program requirements | Mike Alton; Gene Schaefers |  |
| B | 03/25/2013 | The requirement to have a written program was replaced by the requirement to have a process. | Tim Yeakley, Dale Moore, Jack McAdams | ELC |
| C | 6/11/2014 | Corrected typo in 5.2.2.3 | Chris Lee |  |